



FOR MEMBERS  
**OFFICIAL  
NEWSLETTER  
OF IACP**  
MARCH 2016

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decades of work behind them, they share a common futuristic vision to contribute to the welfare of persons with cerebral palsy and related neuro developmental disabilities and their families at all socio ecological levels.

In fact it is dream come true of the first founder president Late Dr.Perin K Mulla Feroze, the dynamic lady orthopedic surgeon who spent her whole life running the cerebral palsy wing of children's orthopedic hospital, Haji Ali, Mumbai. This institution was the first multidisciplinary service provider for children with cerebral palsy in India. Dr.Mulla Feroze was a fire brand inspirational leader in the field who used to describe herself as a battle scarred veteran in the fight against cerebral palsy. The Indian Academy of cerebral palsy was inaugurated officially

The Indian academy of cerebral palsy is a national body consisting of pioneers drawn from different regions and specialties across the country. With

at Mumbai during the Asia Pacific Childhood Disability Update held in December 2005 and we were privileged to have Dr. M.S. Mahadeviah Developmental pediatrician, Spastic society, Karnataka, as the First president of the organization. He is the pioneer to have started teaching developmental pediatrics at Bangalore after returning from USA.

The first annual conference was held at Hyderabad during Nov 2006 under the leadership of the General Secretary Dr.Anirudh K Purohit with the theme of "Spasticity Management". The second annual conference was held at Bangalore during Nov 2007 with the theme "Infancy to Adulthood" under guidance of the President Dr.M S Mahadeviah & Mrs.Rukmini Krishnaswamy of Spastic Society of Karnataka. The third annual conference was held at Nagpur in collaboration with NKP Salve Institute Of Medical Sciences during Nov 2008 with the theme " From Intention To Action- Family Centered Services" under the leadership of Dr.Vittal Rao Dange of NKPSIMS and Dr.G.Shashikala, Asso. General Seretary of IACP. During

this conference we had the distinguished presence of Prof. Peter L Rosenbaum of McMaster University, Canada as a guest teacher and a mentor.

The new body under the leadership of Dr.Ashok N Johari as President was unanimously elected during the GBM held at Nagpur Conference for a period of three years. During these three years, bi annual news letters of the academy have been published with enlightening scientific articles both for professionals and parents along with the details of the various activities under taken. The academy also has a web site [www.iacp.co.in](http://www.iacp.co.in) which has all the related information of the academy and the activities The aims and future plans of the academy are detailed in this brochure. We call upon all developmental health & rehabilitation professionals, organizations and parents of differently abled persons to join hands with us for achieving the welfare of persons with disability across life span at all levels.



- Our Mission is to propel perceptions of disability from a label to the empowerment and enablement of ability to achieve inclusion in all streams of life. Towards this end, IACP will endeavour at all times to achieve reaching of the highway of enablement and empowerment for persons with developmental disability by the following 8 steps. We will try to inculcate these principles in our members not as a slogan but as a matter of attitude and habit in our daily professional practice.
- Early diagnosis of all developmental disorders as early as possible within the limitations of presently available professional and technological competencies.
- Effective communication and education of parents for coping strategies required to meet the demands and stresses of parenting special children according to the needs of the families with a family centered approach.
- Evolving early developmental guidance models which are eclectic, need based, culturally sensitive & cost effective for optimal development without accent on therapy methods & techniques trying to fix disability & pursue the impossible dream of normalization.

- Enabling medical and educational management with a person first approach by creating opportunities for activities and participation as per ICF model.
- Environmental enrichment by breaking down architectural and attitudinal barriers from health care to employment levels.
- Enhancing quality of life of individuals with disabilities with competencies however compromised they may be and promote well being of their families to ensure their rightful place under the sunshine as envisaged in the WHO convention on the rights of the disabled.
- Encouraging networking at national and international levels among all professionals to facilitate intra and interdisciplinary interaction to care, share, learn and mentor generation next to take the movement forward.
- Ensure promote the usage of people first language universally among members of IACP and abolish derogatory labels like spastic, autistic, dyslexic etc by prefixing the person as an individual rather than the stereotyped disability caricature –for example referring to a child as

child with spastic cerebral palsy and not as –MR/CP or spastic child.





The logo consists of a circle in the centre of which runs a step ladder showing gross motor mile stones of a child. The Circle represents the all encompassing Environment progressively moving from the child development centered micro focus to the larger policy making exo environment depicting Urie Bronfenbrenner's socio ecological model of child development. The IACP vision thus encompasses efforts to improve services at all these levels with a lifespan approach from infancy to adulthood.

The step ladder itself represents the touch point model of Brazelton where the landings or the natural plateaus suggest periods of developmental stagnation which are periods of opportunity for parental counselling addressing their coping ensuring our commitment to a family center approach with an unwavering accent on optimal development rather than impossible dream of normalization.

The background shows a radiant topical sun showing light & warmth on children's developmental progress symbolizing the WHO slogan of international decade of the handicapped [1981-1991] – "A PLACE UNDER THE SUNSHINE FOR ALL HANDICAPPED" – confirming our commitment to a rights based approach which unifies the biological model of disability care with the social model as envisaged by our slogan "FROM DISABILITY TO DIFFERENT ABILITY".



LONGLIVE IACP & MAY WE ACHIEVE OUR GOAL OF ENSURING CAPABILITY, CAPACITY, PARTICIPATIONS AND QUALITY OF LIFE FOR ALL PERSONS WITH DEVELOPMENT IMPAIRMENTS AS A TEAM.  
GROWING STRONGER AS WE MOVE FORWARD FROM INTENTIONS TO ACTION.



IACP

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Late Dr.(Ms.) P. K. Mullaferoze



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**D**ear Colleagues,  
We had an extremely gratifying 10th conference. Befittingly, we seem to have turned the corners in our 10yrs of journey. The existing Executive team is working hard to usher in lot more changes. All those who keep track of our Facebook, will notice the changes in our functioning & the methods we are adopting to reach our members.

Sadly, many of our members do not attend our conferences. This means that our members are not interested in taking advantage of knowledge translation efforts at our scientific programs or believe they are too well informed in the subject. With 30 yrs in this field only & having seen the quality of services across many states & many different settings, I regret to admit that it continues to be pathetic.

There continues to be exploitation of children & families with unproven methods which are not questioned by any competent authorities. The standard of our research papers continues to be poor & many of the youngsters are not even aware of the presentation & publication etiquettes.

This is particularly true in therapy methods. There is a tendency to use IACP membership as a kind of certifying credential than use the academy forum to further our learning. There is a kind of slavery to methods than to question their scientific rationale. Why do children with Lower limb accentuated cerebral palsy have difference in the quality of Upper limb movement even though there is no demonstrable U.L. pathology in the neural substrate? It is not enough that we prove the relation between GMFCS, MACS & QUEST [which is well reported by many previous studies] statistically but it is necessary that we discuss the mechanisms leading to this rather interesting phenomenon. I do not find this in our research presentations. There is accent on methodology only in a few papers but no dwelling deeper in to the mechanisms.

Generally, our professional environment is not conducive to research efforts but only in encouraging competing & surviving strategies. So, there is a mad rush to do something different than

others to draw more clients than do evidence based practice. This is a singularly prominent lacuna of our educational & training system not only in medicine, therapy but all the more in basic sciences. Many of our promising youngsters loose out to others in international arena because our research initiatives are poorly designed & confined to get masters degree or to improve the CV of our teaching faculties. Many among them have massive egos & sense of superiority. We do not teach our youngsters to think, question, improvise or to do anything new which our research guides do not know or do not approve. How do we expect our papers in our conferences to be of better quality? Can we at our Academy teach people to learn to raise relevant questions for research?

I am concerned of this in the interest of our quality of services. Treating people is a science & not a method. It is not enough that therapists & doctors expect our workshops to teach what to do or how to do but we need to concentrate on why this & why not? We need to know that a method basically used as a neuro- protection measure by neonatologists cannot be used by a neurosurgeon for treating children with established cerebral palsies. Why should we select such papers which do not even rate themselves on EBM guidelines just to make up the numbers? Why is it that every conference has only local delegates & not members? Should we make it compulsory that unless the members attend at least two conferences over a period of 5 yrs & produce the certificate of attendance & credits, their memberships will not be continued like for doctors with MCI registration if they are using our membership as credentials?

I hope at least our executive body members will take the initiative to get persons from their institutions participate in our conferences. Hope to see you at this year's meeting at Bangalore on the exciting topic of Neuroplasticity. Block your dates with us for excellent learning opportunity in the interest of children & families you serve at least if not for your own gains in the month of November!

**IN THE SERVICE OF ACADEMY & WHAT IT STANDS FOR:  
DR. G. SHASHIKALA**



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**G**reetings from the “office” of the Secretary of the Indian Academy of Cerebral Palsy (IACP). Our academy is a group of professionals working together to make a difference for individuals with childhood-onset disabilities and their families. The Indian academy of cerebral palsy is a national body consisting of pioneers drawn from different regions and specialties across the country. With decades of work behind them, they share a common futuristic vision to contribute to the welfare. We are currently 500 members strong and growing! Through the promotion of science, education and advocacy the IACP aims to drive clinical excellence and promote health, wellness and inclusion.

Highlights of IACP activities include an annual conference that brings together professionals to present cutting edge science in the field and to promote interdisciplinary discussion around clinical services and care. We celebrate National Cerebral Palsy Day' on 3rd Octo-

ber .The aim of the event is to highlight the interests and abilities of children with cerebral palsy, and to demonstrate that they are no different than anyone else. Through the event, IACP also aims to raise awareness about this challenging condition. An integral piece of our mission in IACP is to bring education to our membership and our consumers, and we strive to continue finding ways to deliver on this mission in the midst of all the changes and challenges we face. Stay tuned for more information. As you can see, there are many exciting opportunities coming up in IACP and you, our members, will be the first to hear as these ideas get ready to be delivered.

I welcome you all to engage and join our Academy to make a difference for individuals with childhood-onset disabilities and their families.

DR ASHA CHITNIS



**1** Please introduce yourself (Name, qualification)?

Name: Mrs. Shobha Sundar . Qualification: Masters in Social Work, with a Specialization in Medical and Psychiatric Social Work and Certificate Course in Learning Disability.

**2** How many years of experience do you have and where do you work at present?

15 Years with Spastics Society of Karnataka and 2 years as a Family Counsellor. Currently with Spastics Society of Karnataka, as Head, Department of Medico Social Work.

**3** What is your area of clinical expertise?

Working with families of children with special needs.

**4** In your career so far, what has been the most challenging experience so far?

The most challenging aspect is to help persons with CP find a job and secondly to look out for a long term independent living option for them.

**5** How do you update yourself with recent research and advancements in the field?

By attending workshops and seminars and working closely with senior medical professionals in the field and by doing short term courses.

**6** What advice will you give a young professional working in the field of Cerebral Palsy?

My advice would be to be a constant learner, as CP impacts many aspects of one's life and the life of one's family. A professional has to be innovative and creative in responding to each child's needs. Also to plan for a long term association with the work for CP, as very little can be achieved in a short time.

INTERVIEW  
CLINICAL  
CORNER.



**R**eport of 10th Annual conference of Indian Academy of Cerebral palsy held from (18-20) December 2015 at SVNIRTAR and Shahid Bhavan, Cuttack.

10th Annual National Conference of the Indian Academy of Cerebral Palsy was jointly organized by the Indian Academy of Cerebral Palsy, Odisha and Swami Vivekanand National Institute of Rehabilitation Training and Research. The conference was held from 18th to 20th December 2015 at SVNIRTAR and Shahid Bhavan, Cuttack, Odisha. The conference theme - "Cerebral palsy: Inter-disciplinary management across the life span"

On 18.12.2015 4 preconference workshops were held at SVNIRTAR campus.

- Interdisciplinary management of Cerebral Palsy
- Postural Control: Putting Principles into Practice
- Orthopedic management of gait abnormalities in CP
- Introduction on Aquatic Therapy

On 19.12.2015 and 20.12.2015 Main conference was held at Shahid Bhavan, Cuttack. There was a family forum in which 150 parents participated. It was inaugurated by smt. Minati



Behera, State Disability commissioner, Odisha. Main conference was inaugurated by Sri Atanu Sabyasachi Nayak, Honble Minister of Health and Family Welfare. Total 458 participants attended the conference. The list of foreign and National Faculty are noted below.

#### List of International faculty

- Dr. Freeman Miller, Faculty, USA
- Dr. Abhay Khot, Faculty, Australia
- Dr. Ana Presedo, Faculty, France
- Dr. Reinald Brunner, Faculty, Switzerland
- Dr. Bernhard Speth, Faculty, Switzerland
- Dr. Barry Rawicki, Faculty, Australia
- Dr. (Mrs.) Barry Rawicki

- Ms. Corina Krapf, Faculty, Switzerland
- Dr. Tsunehiko Suzuki, Faculty, Japan
- Dr. (Mrs.) Suzuki
- Mr. Devanshu Rai, Faculty, Australia
- Prof. Javed Iqbal - Pakistan, Faculty
- Dr. Sarwar Ibne Salam - Bangladesh, Faculty
- Dr. JagathMunasinghe-Srilanka, Faculty
- Dr. Lalitendu Jena,- Nepal, Faculty
- Ute Kircher- Switzerland
- Andreas Reinhard- Switzerland

#### List of National faculty

- Dr. G Shashikala, President, IACP
- Dr. Sakti Prasad Das, Org. Sect, IACPCON 2015
- Dr. Ashok Johari, Board of Director, IACP
- Dr. M Mahadeviah, Board of Director, IACP
- Dr. Anaita Hegde, Faculty
- Dr. Usha Johari, Faculty
- Dr. Sudha Manjunatha, Faculty
- Dr. Anurag Misra, Faculty
- Dr. Dhruv Mehta, Joint Vice president, IACP
- Mr. K D Mallikarjuna, Vice President, IACP

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11. Dr. Sanjay K Das, Organising Chairman
12. Dr. R N Mohanty, Patron
13. Dr. Anita Suresh, Faculty
14. Mrs. Shobha Sundar, Faculty
15. Dr. Asha Chitnis, Secretary, IACP
16. Dr. P P Mohanty, Faculty
17. Mr. Laxit Doshi, Faculty
18. Dr. Trupti Nikharge, Faculty
19. Ms. Anurupa Senapati, Faculty

20. Dr. Pragnesh N - Faculty
21. Dr. Madhavi Kelapure, Faculty
22. Dr. Vinay Kumar – Faculty
23. Dr. Dhiren Ganjwala, Faculty
24. Dr. Anil Kumar Pandey, Faculty
25. Dr. Maulin Shah, Faculty
26. Dr. Sanjay Keshkar, Faculty
27. Dr. Jeetendra Jain, Faculty
28. Dr. P.K Sahoo, Faculty

29. Dr. Alaric Aroojis ,Faculty
30. Dr. Taral Nagda, Faculty
31. Dr. Premal Naik, Faculty
32. Dr. Sudhir K Mohapatra, Faculty
33. Dr. C. G. Prashanth, Faculty
34. Dr. Vijaylaxmi Nayak, Faculty
35. Prof. P C Mohapatra, Faculty
36. Dr. Pravakar Mishra, Faculty
37. Dr. Senthil Amudan, Faculty

38. Dr. Girish Rao, Faculty
39. Mr. Amarendra Panda, Faculty
40. Dr. Varidmala Jain, Faculty
41. Mr. Subrat Halidar, Faculty
42. Dr. Bhagyalaxmi Nayak, Faculty
43. Dr. Surjeet Sahoo, Faculty
44. Dr. Shankar Shelke, Faculty

On 19.12.2015 there was a parents forum program at Cuttack in which around 150 parents and patients attended. The Program was inaugurated By Smt. Minati Behera, State Disability commissioner, Odisha and Mr. P R Das, Advisor to Disability commissioner.

Details of Parents program is mentioned below:

1. Problems faced by adult and older generation suffering with cerebral palsy: Dr. Jitendra Jain
2. Modification in home environment fit to their need (architectural planning): Dr. P K Sahoo
3. Problems faced in activity of daily life, their remedies: Dr. Jitendra Jain
4. Nutritional problems & their management: Dr. Varidmala Jain
5. Assistive devices For ADL: Mr. Subrat Halidar.
6. Measures to maintain physical status of child with CP: Dr. Dhruv Mehta
7. Menstrual problems and dealing with it: Dr. Bhagyalaxmi Nayak

8. Behavioral problems in children & adolescents with cp: Dr. Surjeet Sahoo at
9. Educational & job opportunities for children with cerebral palsy: Dr. Shankar Shelke
10. Government policy and support: Mr. K D Mallikarjun
11. Parent's speech / Motivational talk by family members : Mr. Amarendra Panda and others.

Main conference was inaugurated by Sri Atanu Sabyasachi Nayak, Honb'le, Minister of Health and Family Welfare, Govt. of Odisha at 6 PM on 19.12.2015. On this occasion, all the foreign faculties were felicitated. A colored souvenir and abstract book was released.

On 20.12.2015 there was a SAARC session in which Faculties from SAARC countries discussed the care of Cerebral palsy affected patients in their countries. The conference was widely covered by Print and electronic media.

EC and GB meeting were held as per schedule of Indian Academy of Cerebral Palsy.



PROCEEDINGS OF PRE CONFERENCE WORKSHOP  
18TH DECEMBER 2015 AT NIRTAR, CUTTACK, ODISHA

The day began with the lamp lighting by Dr. Shashikala Gopaldaswamy, Dr. Anaita Hegde, Dr. Usha Johari, Dr. Dhruv Mehta, Dr. Anita Suresh, Mrs. Shobha Sundar. It was followed by a small session of Ice breaking where delegates were asked to draw an elephant's individual body parts with eyes closed at the centre of a paper sheet with a companion delegate's help. The idea was to demonstrate how difficult it is to reproduce what we presume we know well if we are not conscious of our limitations in learning. It turned out to be a fun learning sojourn for the day. Delegates also had to answer a pre test with 15 MCQS

- Dr. Shashikala Gopaldaswamy, President of Indian Academy of Cerebral Palsy, introduced the theme of the conference & set the stage for discussing intricacies of interdisciplinary management of cerebral palsy as the need of the hour keeping in line with the changing trends in health management where accent is on impact, context &

functionality as per International classification of functioning, disability & health WHO 2001. She defined all other models of health services, pointed out the advantages & disadvantages of Interdisciplinary system tracing types of interdisciplinary communication, skill development, roles of team members & leadership demands & conflict resolution needs & capacity building strategies. In view of the huge number of professionals involved at all levels of prevention, she stressed on bridging commonalities from discipline specific perspective to care model across life span as an interwoven service system for wellbeing of the recipients & their families compatible with our cultural & infrastructural limitations in terms of health literacy, demographics, distances, economic disparities & demands across all sections of society.

- Dr. Ashok Johari, Pediatric Orthopedic Surgeon and Member of the Board of Directors of the Indian Academy of Cerebral Palsy spoke about the Orthopaedic perspectives in the management of Cerebral Palsy. He highlighted the importance of scientifically planned therapy interven-

tion at the right stages which could help prevent deformities and also improve functionality. He also explained the nature of growth and development in Cerebral Palsy, wherein, despite therapy, the person could still develop a crouched gait later, as he or she gains weight etc. Dr. Ashok Johari highlighted that a hip deformity is more a rule than an exception in Cerebral Palsy and so regular hip surveillance is a necessity. He explained the importance of the communication between caregivers, therapists and the doctors as imminent to the management of Cerebral Palsy.

- Dr. Anaita Hegde, Pediatric Neurologist then spoke about the Interdisciplinary approach to seizure management. She highlighted the importance of continuous communication between the caregivers, including the teachers, parents etc. and the doctor. She explained about the various options of Seizure management and also that the final management plan was arrived at taking into consideration the caregivers inputs and the functionality requirements of the child with seizures.

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- Visual issues instructional course had three speakers. Dr. Usha Johari, spoke about the various types of vision concerns that children with Cerebral palsy could have and also about the underlying neuropathology. She also highlighted the interventions that could help in the early stages & emphasized on the need for catching them early.

- Dr. Sudha Manjaunatha, Pediatric Ophthalmologist made a very lucid presentation on cortical visual impairment & why it is so easily missed. She spoke about the four types of Delayed visual maturation, their clinical features & investigations, anatomy of dorsal & ventral stream dysfunctions, their subtle functional visual features but the huge impact in finer visual functions in reading, writing & motor coordination needs. Her stressing on the fact - Eye examination does not explain the way a child sees & clear management strategies were very informative. Some of the easily missed signs like difficulty in visual guidance of movements, using bright light for impairments in contrast sensitivity, using tactile compensation were very informative.

- Dr. Anurag Misra spoke about the various kinds of vision tests available and how each one could be used to analyze the visual aspects of the person with Cerebral Palsy.

- Dr. Dhruv Mehta, Physiotherapist, then spoke about the Therapy perspective in the management of Cerebral Palsy. He highlighted the fact that therapy can be fun and can be woven into the daily activities of the child rather than just being a therapy session. He spoke about the role of the caregivers as co-therapists in the long run. He laid special emphasis about the negative effects of too much therapy as against harm done by less or no therapy.

- Dr. Anita Suresh, Occupational therapist spoke about Feeding & communication concerns in Cerebral Palsy. She spoke about the use of EDACS and how it helped to understand the child's feeding competency. She highlighted the necessity of understanding the issues in swallowing that occurred as a result of the postures and breathing differences in a person with Cerebral palsy. She delineated the social impact of feeding difficulties that

children with CP faced. She mentioned about the delays in swallowing and the family aspects of this in terms of the response to feeding difficulties by the caregiver and the impact on the caregiver when a child had feeding, drinking or swallowing difficulties.

- Mrs. Shobha Sundar, Medico Social Worker, Spastics Society of Karnataka, spoke about Psychosocial Aspects of Family coping in Cerebral Palsy. This talk highlighted the need to understand the responses of families in the context of the family dynamics which included the relationships, roles and the types of families and the contexts in which families functioned. She elaborated the Enmeshment Disengagement Continuum & the need to validate the emotional turmoil families go through empathetically & rationally too to provide support, help, assistance, advice & guidance appropriate to the family needs, situations, power structure of family & their decision making capacity. She also touched upon parental neglect & using parent to parent support groups as helpful strategies for positive coping.



- In the afternoon session, Case scenarios were distributed to 6 groups who discussed these cases along with the faculty as guides & came up with a Comprehensive interdisciplinary management plan in each case. Each group had a leader who presented the consensus to the whole audience with opinions from Faculty. The highlights of this were the options available for a child from a rural part of India who had severe seizures, the pros and cons of epilepsy surgery as also orthopedic surgery timing, School or educational recommendations, vocational needs as per the age of the child without harping on medical treatment only. It was highlighted that education planning had to be as per the child's abilities. Cases ranged from young child to adults, management guidelines were from side effects of antiepileptic drugs to movement disorder management, supporting dorsal stream dysfunction by using a cane to substitute for missing sensory input [visual guidance only & not seeing per se], rubella syndrome management & prevention, upper extremity management, positive coping in families of lower economic group but with child

centered values & interdisciplinary communication & team planning before talking to parents including grandparents & other power holding members of families as practiced in Spastic society of Karnataka module.

- Post test answer sheets were given. This session was attended by Neurologists, Special educators, therapists and a Social worker apart from a Pediatrician from Nepal, Pediatric neurologist from Srilanka. 35 delegates took advantage of this learning intensive but interactive workstation where delegates held the fort in the afternoon. The module was appreciated by all the delegates & take home message of interdisciplinary management was amply brought out.

PRESENTATIONS WILL BE UPLOADED ON THE  
IACP WEBSITE SHORTLY



PROCEEDINGS OF PCW ON POSTURAL  
CONTROL, 10TH ANNUAL IACPCON, ODISHA  
18TH DECEMBER 2015,  
SVNIRTAR, CUTTACK, 9 AM TO 5 PM.

FACULTY:

- Dr. G. Shashikala
- Dr. Asha Chitnis
- Dr. Madhavi Kelapure
- Dr. Trupti Nikharge
- Dr. Laxit Doshi
- Dr. Anurupa Senapati
- Dr. Vinay Kumar

PARTICIPANTS:

Approximately 150 delegates participated in the pre conference workshop, including Physiotherapy & Occupational therapy Practitioners & Students.

The pre conference workshop was inaugurated by lamp lighting by Director SVNIRTAR, Dr S K Das, Dr Mohanty, Dr S P Das & Dr Asha

Chitnis, followed by inaugural talk by Director SVNIRTAR, Dr S K Das, Dr Mohanty & Dr S P Das.

Dr. Asha started with the 1st topic: 'ICF in the clinic'. She stressed out that any evaluation of a child with Cerebral Palsy needs to be on International Classification of Function. The Functional Abilities/ Limitations, Participation/ Participation restrictions and impairments were made easy to understand through videos of children. She also touched base on the Goal attainment Scale.

Next speaker was Dr. Shashikala who presented on 'Neurophysiology of Postural Control: where am I and what am I going to do – Unfolding Cerebral Palsy story further'. She started with basics of posture, posture and movement, resources required for postural control. Thereafter, she detailed about the sensory (where am I) and motor (what am I going to do) aspects of balance control. Neuronal group selection theory and Dynamic Systems theory of motor control were also explained. Last part of her talk was about postural management of Cerebral Palsy and she ended with stressing on the difference between exer-

cises and intervention of children with Cerebral Palsy.

Dr. Anurupa spoke on 'Role of Sensory Systems in Postural Control'. She gave details of visual, tactile, proprioceptive and vestibular systems.

Dr. Trupti talked on the topic of 'Sensory processing Dysfunctions in Cerebral Palsy'. She discussed various problems seen in different types of Cerebral Palsy and how the sensory impairments can contribute to motor difficulties in these children. Her point was explained through small videos of different children with Cerebral Palsy.

Dr. Laxit presented a video case study that helped correlate the above mentioned topics clinically.

Then the participants had a lab session in which they practiced facilitation of activating base of support, active thoracic extension. Dr. Asha demonstrated the techniques first on one of the participants which they practiced on each other. This was supervised by all the therapist faculty members.



After Lunch, Dr. Asha showed the assessment & treatment strategies on a patient.

Dr. Madhavi and Dr. Vinay talked about 'Recent Research on Postural Control'; emphasizing on APAs (Anticipatory Postural Adjustments) and CPAs (Compensatory Postural Adjustments) respectively. They also stressed on the clinical implications of research papers to develop treatment ideas for postural control.

Followed by this, Dr. Asha again continued with interactive discussion regarding assessment & treatment on 3 more patients. She taught the participants how to differentiate between sensory based motor dysfunction and motor based sensory dysfunction. She also gave treatment strategy demonstration in all the children.

The workshop concluded at 5pm.



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Interdisciplinary approach  
across lifespan

Prof. Reinald Brunner F.R.C.S.  
University Children's Hospital  
Basel / Switzerland

**IMPORTANT:**  
CLICK ON THE ABOVE ICON  
TO DOWNLOAD THE  
PRESENTATION

KEYNOTE BY  
DR. BRUNNER.



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### IMPORTANT

THE IACP NEWSLETTER BRINGS THE FOLLOWING PAPERS. KINDLY REFER TO THE ARTICLE NUMBER IN THE SUB-MENU ABOVE TO NAVIGATE TO THE RESPECTIVE ARTICLE / PAPERS.

**1** ARTICLE  
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## RELATION OF QUALITY OF UPPER LIMB TO INDEPENDENT GROSS MOTOR AND MANUAL ABILITY FUNCTION IN CHILDREN WITH SPAS- TIC DIPLEGIA

### ABSTRACT

#### BACKGROUND:

Most of the spastic diplegic children show variability in upper limb and upper trunk. Due to this variation in upper limb and upper trunk will the quality of upper limb affect and limit the independence of functional activities in these children? So this study aimed to find the relation of the quality of upper limb function to independent gross motor and manual ability function in children with spastic diplegia.

#### METHOD:

Overall 30 children with both girls and boys diagnosed as spastic diplegia from the age of 4 years and above till 8 years were included. Children having any musculoskeletal deformity of upper limb or fracture or who had un-

dergone BOTOX or release in last 6 months or who were unable to follow commands were excluded. Included children were classified in GMFCS and MACS level. The outcome measures used were Quality of upper limb function was assessed using quality of upper extremity skills test (QUEST) and self-care was assessed using Self-care domain of functional skills with its caregiver assistance of PEDI (Pediatric Evaluation of Disability Inventory). The data was analyzed.

#### RESULTS:

Spearman coefficient of correlation was done. The quality was moderately correlated with GMFCS (-0.459) and MACS (-0.589) while it was strongly correlated with self-care domain of functional skills (0.647) and caregiver assistance of PEDI (0.666)

#### CONCLUSION:

The quality of upper limb functions was affected in children with spastic diplegia. This was reflected on self-care domain along with caregiver assistance of PEDI.

Key words: Spastic diplegia, upper-limb, quality of upper limb, PEDI, self-care activities

### INTRODUCTION

Spastic Cerebral Palsy (CP) is commonest and accounts 70 % -75% of all cases. [1] In topographical classification, spastic diplegia is known to have more difficulties in lower limb than upper limbs due to periventricular leukomalacia. [1] During normal development grasping, gripping and bimanual coordination required for the skillful activities of upper limb in daily life situations starts developing by the age of 6 months which becomes adult like by age of 4 years. [2] Independence in the basic activities of daily living is fully developed by around 7 years of age. [2,3] So this period of 4 to 8 year of childhood development is crucial for the acquisition of self-care skills, and it is difficult to achieve independence if fine and gross motor skills are significantly impaired. [4,5]

Any atypical limb use during the critical periods of corticospinal tract development may result in abnormal upper limb movement synergies like recruitment of excessive



trunk movement (motor compensations). [6, 7] Most of the spastic diplegic children are mobile with or without assistive devices and variability was seen in upper limb and upper trunk while the lower trunk functioned in a similar pattern. [8] As a result they perform activities of self-care, education, and social interaction with upper limb motor deficits seen in reaching, grasping, and prehension. [9, 10] So will quality of upper limb skills be related to independent functioning? Thus this study aimed to assess quality of upper limb skills in different levels of gross motor and manual ability classifications and in daily self-care skills, thus finding the relation of quality of upper limb to independent gross motor and manual ability function in self-care skills.

### MATERIALS AND METHODS

After institutional ethical clearance, an observational cross sectional study of 30 children with both girls and boys diagnosed as spastic diplegia from the age of 4 years and above till 8 years were included. Children having any musculoskeletal deformity of upper limb or fracture or

who had undergone BOTOX or release in last 6 months or who were unable to follow commands were excluded. The flowchart depicts the screening, sampling and assessment in the study. Included children were classified in Gross Motor Function Classification System (GMFCS) and Manual Ability Classification System (MACS) level thus giving level of independence. The children in both level 1 and 2 of both classifications were considered independent. [11, 12, 13] The quality of upper limb function was assessed using Quality of Upper Extremity Skills Test (QUEST) which has four components of dissociation, grasps, weight bearing and protective extension. [14] The self-care was assessed using self-care domain of functional skill of PEDI (Pediatric Evaluation of Disability Inventory) and the level of assistance was assessed using its caregiver assistance. It was administered through various procedures like structured interview with parents, observations of the child by caregiver's teachers or therapist and professional judgments by the therapist or the teachers. PEDI is a valid assessment of functional activities in children with disabilities with high interrater reliability for the summa-

ry scores (from 0.85 to 0.98) when administered as a parent interview. Its each individual domain of functional skills is reliable. The reliability of self-care domain is 0.94. [3, 15] A statistical analysis was performed using SPSS version 12.0 and correlation between quality and MACS, GMFCS and self-care component of PEDI was calculated. Also the individual components of QUEST were correlated with MACS, GMFCS and self-care component of PEDI. Non-parametric test of Spearman's coefficient of correlation was used for all the variables.

### RESULTS

A total of 30 children were included in the study and were assessed for quality of upper limb skills. The mean distribution of children according to age, QUEST and self-care and caregiver components of PEDI in different level of GMFCS and MACS are given in Table 1. The independence in gross motor and manual ability was considered according to GMFCS and MACS levels respectively along with their self-care activities and caregiver assistance are represented in Table 2. The correlation of QUEST with



GMFCS, MACS and self-care domain of functional skills along with caregiver assistance of PEDI are shown in Table 3. The correlation of different components of QUEST with GMFCS, MACS and self-care domain of functional skills along with caregiver assistance of PEDI are represented in Table 4. The distribution of hand rating of dominant side and bilateral hands components of QUEST in different levels of GMFCS and MACS is represented in Table 5.

## DISCUSSION

To be independent is an ultimate goal of life which is reliant on the ability to perform gross motor and manual ability functions self-sufficiently. From the age 4 years and onwards children intend to be independent with their self-care activities. [4-5] But there are many parameters which restricts this freedom especially in children with spastic diplegia. Earlier literature has focused on relation between gross motor, manual ability and self-care skills in children with spastic CP. [16] However, relation of quality of upper limb with independent functioning in self-

care skills was least spoken. So this study focused to target the independent functioning in diplegics with respect to quality of upper limbs.

The goal of the classifications in the assessment of CP children is to assist in the communication between clinicians, select homogeneous groups of children for clinical research trials, facilitate the development of rating scales to assess improvement or deterioration with time, and, eventually, to better match individual children with specific therapies. [17] Children categorized in level 1 and 2 of gross motor (GMFCS) and manual ability (MACS) classifications were considered independent (Table 2). However in this study it was found that in functional situation, where upper and lower limbs works in coordination this complete independence was still not evident. This was reflected on self-care skills scores in PEDI where even minimal caregiver assistance in the form auditory cues was required to hasten the task being performed. On analysis, the component which seemed to reduce independence was quality as assessed with QUEST. This could explain why the quality of upper limbs plays a key role

in bringing about smoothness and fluidity to performed movement. While spastic diplegics categorized in level 3, 4 and 5 \* (Table 2) who were considered dependent on gross motor and manual ability classifications, were found to have further involvement of self-care skills. This could be because as the quality of upper limbs reduces in standing, child spends more time in W-sitting providing wide Base Of Support (BOS) with hands free to support, reach, manipulate and play. The position produces inefficient lower trunk extension due to which the overhead reach, erect sitting and lower trunk weight shift becomes difficult. [8] Thus in our study, children classified in higher levels required greater assistance as observed on PEDI with the quality of upper limbs being further reduced.

However, most of the studies showed that there are very few spastic diplegics who fall in GMFCS Level IV category. [13, 18, 19, 20] Robert J Palisano mentioned that children initially classified in Levels II, III, and IV were more likely to be reclassified if under the age of 6 years as they could produce changes in usual methods of mobility over a 3- to 4-year period along with therapy. [21] This could



be, because children below 4 years in GMFCS are categorized on basis of quality of movement and ease of sitting, crawling, pulling to stand, and cruising, and not on ability to walk alone.

To check what actually affects quality of upper limbs, so that can be focused in the therapy this study correlated GMFCS scores and QUEST and found moderate inverse correlation (r = -0.459), which implied that higher the deficit of gross motor function, the quality of upper limb skills further reduces. The correlation of MACS scores with QUEST showed a moderate inverse correlation (r = - 0.586) suggesting that if the manual ability was affected the quality also reduced. On correlating the scores of self-care domain of functional skills(r=0.647) along with caregiver components(r=0.666) of PEDI with QUEST a strong correlation was obtained indicating that better quality of upper limb will lead to better functioning in daily activities. Thus it's the functional activity which is being performed defines the quality of upper limb (Table 3).

Accordingly we found that quality of upper limb plays a noteworthy role in independent functioning. To elaborate quality, this study explored the four components of QUEST and found its correlation with GMFCS, MACS and self-care component of PEDI (Table 4).

In this study, the first component of QUEST i.e. dissociation showed a weak correlation with GMFCS while with MACS and self-care and its caregiver components of PEDI, a moderate correlation was observed. This could be due to poor individuation which results in excessive and unintended motion at linked body segments. [22] Spastic diplegic show complete isolation of movement at each joint of each limb but when movements are initiated with lower extremities as BOS there is lack of individuation which affects the relation with GMFCS. [22-23] The dissociation component of QUEST assessed only individual joints but the MACS involved the ability to handle objects with both the hands functionally which eventually influenced the relation of MACS with dissociation component. [12] However most of the activities of daily living involve trunk and both the upper extremities while in spastic di-

plegic, trunk rotation was found to be significantly affected due to locking of upper part of lumbar spine, rib cage elevation and weak obliques. [8] Thus justifying the relation of dissociation component of QUEST with PEDI.

The second component of QUEST i.e. grasp also showed a weak correlation with GMFCS while a moderate correlation was seen with MACS but a strong correlation was obtained with self-care component and its caregiver assistance. This could be because the presentation of posture and function of upper limb worsens only when the lower body becomes responsible for BOS and initiates movement. While in QUEST, the grasp was assessed in sitting or ring sitting where the BOS remained stable and it did not influence the upper limb. [8] Thus explaining why the GMFCS was weakly correlated with grasp component. MACS judged manual ability on the basis of handling the object irrespective of pattern of grasp, (primitive or mature) or alignment of trunk but in this study while assessing the grasp component of QUEST, the trunk alignment was considered. However in our study still a moderate correlation was seen between MACS and grasp compo-



ment because these children attempted pivoting in prone but due to lack of active lower limbs movements the thenar muscles did not elongate sufficiently. A strong correlation of grasp component with PEDI could be because, these children show inability to elongate thenar muscle sufficiently and due to habitual walking by substituting with the upper body the perception of grasps and grips are affected. [8] Rather than simultaneously activating grip and lift forces they sequentially coordinate, leading to disorganization in most items of self-care activities thus, increasing the assistance. [22]

The third component of QUEST i.e. weight bearing showed a moderate correlation with GMFCS while MACS, self-care component and its caregiver assistance showed strong correlation. The moderate correlation of weight bearing with GMFCS could be due to the reason that diplegics face difficulties in fine-tuning the degree of postural muscle contraction to the task specific conditions. However the postural control is intact and they could access to direction-specific postural adjustments

appropriately. [24] Thus they attempt and show symmetry with posture but skills are not yet refined. A strong correlation of weight bearing with MACS was seen because diplegics often voluntarily stiffen their arms while trying to do what lower extremities can't do; thus, on shifting the weight the manual skills are further affected. [8] Spastic diplegics shift weight from the upper trunk and upper limbs with many a times disconnection from lower trunk and lower limb. Thus affects the ability to perform self-care activities as it is further challenged. As a result, more assistance was required. This could suggest why a moderate correlation of weight bearing component with self-care components of functional skills along with caregiver assistance of PEDI were seen in this study.

The fourth component of QUEST i.e. protective extension showed weak correlation with GMFCS and self-care component along with its caregiver assistance of PEDI while only MACS showed a moderate correlation. When any perturbation is given to displace the Center Of Gravity (COG) out of BOS, the feed forward system is challenged in an attempt to recover the postural control. From 5 years

onwards a mild preference for top-down recruitment emerges, while in spastic diplegics differences were observed in recruitment order, latencies to activate postural muscle, along with a higher level of antagonistic co-activation. [24] Thus, a weaker correlation was seen between GMFCS and protective extension component of QUEST. The spastic diplegics tend to adopt a high guard posture in challenging tasks affecting the manual ability thus; a moderate correlation was seen between MACS and protective extension. [8] If child adopts high guard posture, there would be difficulty in performing any task and the assistance required would be increased. This explains why, weak correlation was seen with protective extension and self-care skills of functional domain along with its caregiver assistance in PEDI.

In this study, other components of QUEST like hand function rating, spasticity rating and cooperativeness rating which are subjective in nature were assessed. [23] Hand function rating showed a decrease in ranking in lower MACS and GMFCS level when the mean of dominance and bilateral hand rating were represented in the levels of



GMFCS and MACS (Table 5). This could be due to inefficient weight shift and decreased dissociation, the reduced functioning, thus hampering the activity level. The spasticity measured in children with spastic diplegia for upper limb, could be because of voluntary overuse of upper limb to stabilize them in challenging situation. In many studies it is referred as apparently spastic. However this apparent spasticity has a minimal effect on quality of upper limb. [22]

As opposed to this, study done by Katharina Delhusen Carnahan et al ranked most spastic diplegic children in lowest level of GMFCS and MACS category. [13] This may be because as most of these children attend normal school and rarely come for therapy. While in this study, sample was collected from special schools and rehabilitation centers and camp; so these children could not be traced. Thus a further study, with significant birth history in the same population could be conducted across all the schools in a region.

Thus most of the diplegic showed reduced quality in the upper limbs, which was eventually portrayed in indepen-

dent functioning of self-care activities even though if it's not a primary deficit.

Thus we concluded that although GMFCS and MACS level 1 and 2 are considered independent, the functioning in self-care activities was still affected, as quality of upper limbs was found to be affected. In the dependent as the levels of GMFCS and MACS increased the quality of upper limbs skills further reduced. Clinically we can imply that the quality of upper limb should be focused along with lower limb in diplegics.

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Tables:

Table 1:

		MACS LEVEL 1	MACS LEVEL 2	MACS LEVEL 3	MACS LEVEL 4	MACS LEVEL 5
GMFCS LEVEL 1	N[%]	2 [6.67]				
	Age (Years)	6.5				
	Self-care component of Functional skills scores	71.45				
	Caregiver assistance	84.80				
	QUEST	92.25				
	GMFCS LEVEL 2	N[%]	1[3.33]	4[13.33]		
Age (Years)		8	5.63			
Self-care component of Functional skills scores		77.30	64.75			
Caregiver assistance		72.70	60.95			
QUEST		89.96	90.84			
GMFCS		N[%]	1[3.33]	14[46.67]	6[20]	
	Age (Years)	8	6.53	6.33		
LEVEL 3	Self-care component of Functional skills scores	70.80	63.46	52.65		
	Caregiver assistance	60.10	61.12	52.83		
	QUEST	81.55	85.04	63.39		
	GMFCS LEVEL 4	N[%]		1[3.33]	1[3.33]	
Age (Years)			4	4.6		
Self-care component of Functional skills scores			59.90	54.30		
Caregiver assistance			51.10	47.30		
QUEST			76.71	74.97		
GMFCS LEVEL 5						

Distribution of spastic diplegic children in relation to QUEST scores, functional skills scores and caregiver assistance scores in PEDI with their number and mean age as per levels of gross motor function (GMFCS) and manual ability (MACS).

†N indicates Number in sample size, % means Percentage

Table 2:

	INDEPENDENT		DEPENDENT	
	GMFCS Level I & Level II	MACS Level 1 & Level 2	GMFCS Level III, Level IV & Level V*	MACS Level 3, Level 4* & Level 5*
N (%)	7 (23.33%)	23 (76.67%)	23 (76.67%)	7 (23.33%)
QUEST	91.12	86.38	78.44	65.04
Self-care domain of functional skills	68.46	65.15	60.41	52.89
Caregiver assistance	69.44	63.17	57.88	52.04

Distribution of QUEST scores, self-care component of functional skills and caregiver assistance as per independent and dependent levels of GMFCS AND MACS.

‡In this Table 2 \* indicates None in this category

Table 3:

Scale	Mean ±SD	Scale	Mean±SD	Coefficient of correlation r value	Remarks
QUEST	81.40 ±14.16	GMFCS	2.77 ±0.68	-0.459	Moderate
QUEST	81.40 ±14.16	MACS	2.1 ±0.61	-0.586	Moderate
QUEST	81.40 ±14.16	PEDI Self-care domain of functional skills	62.29 ±8.64	0.647	Strong
QUEST	81.40 ±14.16		Caregiver assistance	60.58 ±11.69	0.666

Correlation of QUEST with GMFCS, MACS and self-care domain of functional skills along with caregiver assistance of PEDI.

Table 4:

	Components of QUEST							
	Dissociated movements		Grasps		Weight bearing		Protective extension	
GMFCS Levels	-0.326	W	-0.371	W	-0.420	M	-0.332	W
MACS Levels	-0.455	M	-0.584	M	-0.703	S	-0.401	M
Self-care Domain of functional skills of PEDI	0.542	M	0.72	S	0.714	S	0.273	W
Caregiver assistance of PEDI	0.582	M	0.724	S	0.718	S	0.259	W

Correlation of different components of QUEST with GMFCS, MACS and self-care domain of functional skills along with caregiver assistance of PEDI.

§-In this Table 4, W- Weak, M- Moderate & S- Strong

Table 5:

	Hand Rating component of QUEST	MACS Level 1	MACS Level 2	MACS Level 3	MACS Level 4	MACS Level 5
GMFCS Level I	Dominant Hand	7.5±2.12				
	Bilateral hand	5.5±3.54	-	-	-	-
GMFCS Level II	Dominant Hand	7	7 ±1.41			
	Bilateral hand	6	5±1.15			
GMFCS Level III	Dominant Hand	8	7±1.51	5.17±0.98		
	Bilateral hand	8	6±1.96	2.67±0.81		
GMFCS Level IV	Dominant Hand		5	6		
	Bilateral hand		3	4		
GMFCS Level V	Dominant Hand					
	Bilateral hand					

Distribution of hand rating of dominant side and bilateral hands components of QUEST in different levels of GMFCS and MACS.



# FIGURE OF THE PAPER

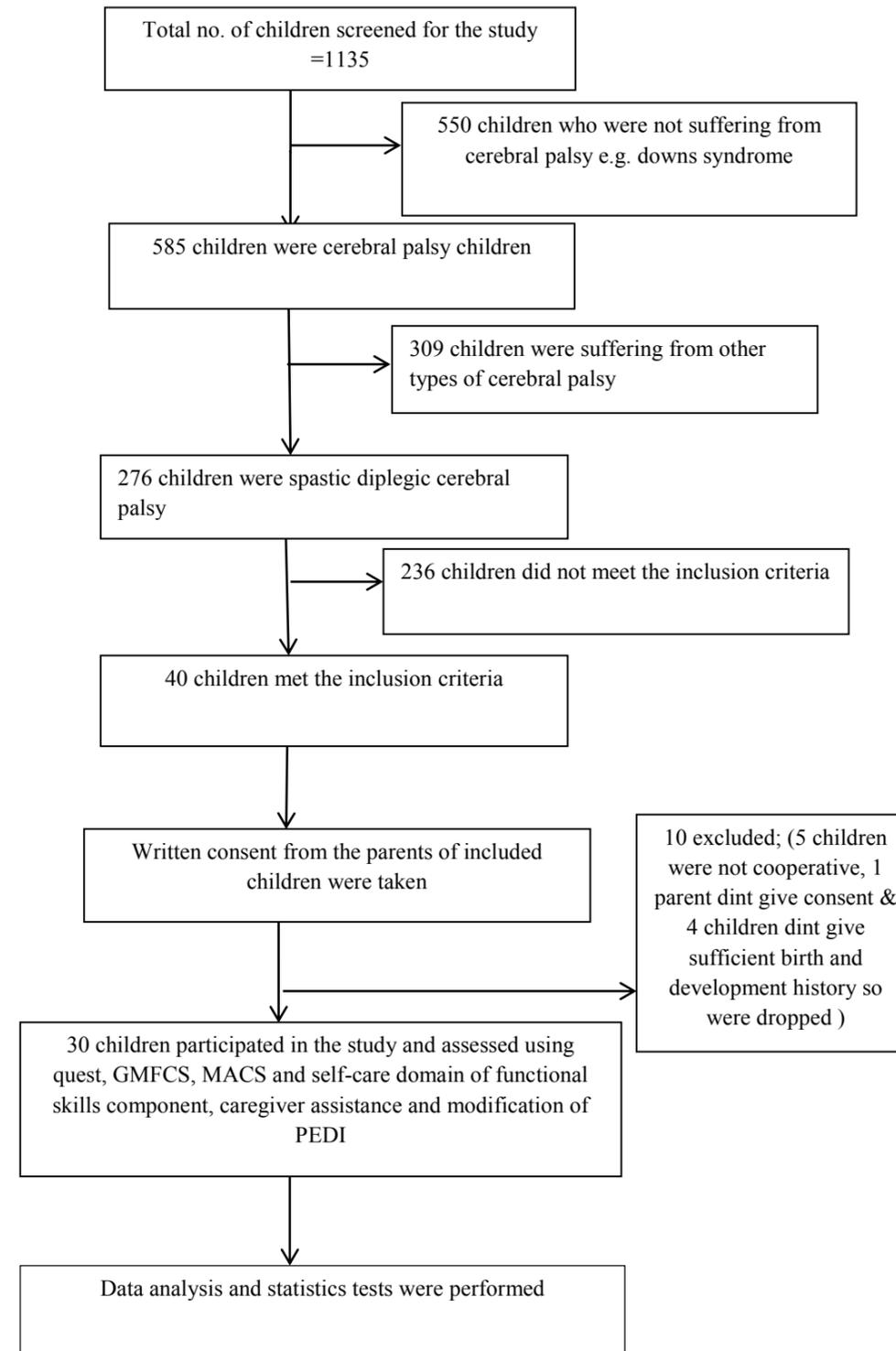


Fig1:Flowchart depicting screening, sampling and assessment:



## EFFECTIVENESS OF SUPRACONDYLAR KNEE ANKLE FOOT ORTHOSIS (SKAFO) FOR HYPEREXTENDED KNEE AND HEEL RISE IN SPASTIC CEREBRAL PALSY: A PILOT CLINICAL TRIAL

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### ABSTRACT

#### BACKGROUND:

Guidelines to assist with decision making for Orthotic management of gait dysfunction in individuals with cerebral palsy (CP) is difficult to derive and remain contro-

versial. The research question is whether SKAFO is one of best options for knee hyperextension and heel rise for spastic diplegic CP.

#### AIM

The purpose of this study was to check the effectiveness of bilateral molded SKAFO for knee hyperextension and heel rise for CP in terms of gait parameters and energy expenditure.

#### METHOD

Five subjects (mean age 3.5 years) years old diagnosed as spastic diplegic and one with hemiplegic (age 5 years old) CP with delayed milestone presented with knee hyperextension and heel rise during mid-stance and were fitted with bilateral molded SKAFO with pair of shoes. Observational gait analysis (OGA) by video recording was observed and gait parameters by 10 meter walk test and energy expenditure using physiological cost index (PCI) was recorded in bracing and non-bracing conditions.

#### RESULTS

The orthosis controlled knee hyperextension by not al-

lowing the knee to go beyond neutral position. The gait was more natural with proper heel strike and better push off. There was improvement in temporal-spatial gait parameters and gait was energy efficient.

#### DISCUSSION & CONCLUSION

The SKAFO was found to be effective in controlling knee hyperextension and resulted in stable, natural and satisfactory and energy efficient gait in spastic CP with knee hyperextension and heel rise. Similar study involving case series can be used to set the prognosis of ambulation and the kind of orthotic interventions needed to optimize the walking ability.

#### KEY WORDS:

Cerebral palsy, heel rise, hyperextension, orthosis, spastic, supracondylar etc.

### Introduction

Most children with Cerebral Palsy (CP) will have spasticity as the main motor disorder and it can be classified either according to which body areas is affected: hemiple-



gia, diplegia, tetraplegia, or the movement disorder type: spastic, athetoid, ataxic and hypotonic. [1, 2, 3] The muscles of subjects with spastic cerebral palsy feel stiff and their movements may look stiff and jerky. Gait abnormalities in children with cerebral palsy are the consequence of contractures across joints, muscle spasticity, and phasically inappropriate muscle action. As described by J.G. Becher, 2002 [4] one of the common gait pattern is knee hyperextension and heel rise in midstance. Children with spastic type CP commonly walk with ankle equinus. [5] Making initial contact with the forefoot during walking will usually cause the line of action of the Ground Reaction Force (GRF) to pass well in front of the knee and hip joints, causing an excessive external knee extension moment, perhaps hyperextension (or back-kneeing), and a flexion moment around the hip. Rigid AFOs that prevent plantarflexion and have been appropriately tuned can alter the line of action of the GRF to reduce the resulting abnormal moments around the knee and hip joints, prevent knee hyperextension and increase hip extension. [6] The benefits of most orthotic interventions used in phys-

ical management regimens for children with cerebral palsy remain controversial. There continues to be significant variation in the orthotic management of children with CP among treatment centres as a result of conflicting treatment paradigms. [7] Despite inconclusive literature [8, 9] a common conservative treatment is the use of an Ankle Foot Orthosis (AFO) with an Adjustable Plantar-flexion Stop (APS) that is typically set at neutral or slight dorsiflexion. In addition AFO applications are suggested for mild degrees of genu recurvatum. [10] These Orthoses are intended to prevent excessive ankle plantar-flexion in stance phase, subsequently reducing knee hyperextension. The efficacy of these Orthoses and the impact of the angle at which the APS is set, however, have not been studied in an objective manner. Further involuntary movements of lower limb associated in CP with more knee hyper extension is difficult to control by AFO. Supra condylar Knee-Ankle-Foot Orthosis (SKAFO) [11] is one option for controlling knee hyperextension but none of the studies was found in the literature regarding its effectiveness in CP to our knowledge. The purpose of this study was to de-

termine the effect of SKAFO on gait pattern, parameters and energy expenditure compared to barefoot walking by children with spastic cerebral palsy.

## MATERIALS & METHODS

### SUBJECTS:

Six subjects out of which five with Diplegic (mean age 3.5 years) and one with Hemiplegic (age 5 years old) diagnosed as CP were studied on a pilot basis to check the effectiveness of SKAFO. All subjects showed delayed developmental milestones. Three subjects were able to walk independently and other three with support. Evaluation of gait revealed knee hyperextension and heel rise during mid-stance. Subjects with no previous history of surgery, free from limitations in the range of movement of the ankle, knee or hip and were able to sit unsupported were selected for our study. An inclusion criteria of MAS score 2 or less and subjects with poor to fair cognitive abilities was set.

### SKAFO DESIGN:

In order to achieve stance phase support and control in

all three planes of affected limb, an orthotic design was proposed, fabricated and fitted to check the effectiveness. This incorporated characteristic features like pre-flexed casting of knee of 5-10 degrees whose working principle was based on a couple force system (Figure 1). Keeping the anterior-superior trim line just 1 inch superior to upper edge of patella to achieve sitting cosmesis. Other features include keeping ankle in neutral position, keeping sufficient height of posterior calf which should also not interfere with sitting knee flexion, supracondylar support, and reinforcement at appropriate areas as per standard Prosthetic & Orthotic guidelines.



Figure. 1 showing different views of SKAFO with shoes.

#### PARAMETERS & INSTRUMENTATION:

Observational Gait Analysis was performed by Video recording. Temporal-spatial gait parameters like step length, stride length, cadence, velocity etc were compared with and without orthosis by a 10 meter walk test (Thompson, 2008) [12] and energy expenditure parameters like heart rate (HR) and physiological cost index - PCI (Rose J et al, 1989) [13] were studied. A stop watch was used to calculate time parameters and a heart rate monitor was used to measure HR.

#### PROCEDURE:

In order to assess walking speed in meters per second over a short duration and calculating other gait parameters the subjects were instructed to walk a set distance of 10 meters (Figure. 2). Time was measured by a stop watch while the subjects walked the set distance in self selected walking speed for the intermediate six meters. The distance covered is divided by the time it took for the subjects to walk the said distance. Collection of three trials were done and the average of the three trials were calculated. The trial was performed for bracing and bare

foot conditions. Resting HR before and just after trial was measured by HR monitor.



Figure. 2 showing preparation and performance in 10 meter walk test

#### RESULTS

The orthosis controlled knee hyperextension by not allowing the knee to go beyond neutral position i.e. the peak knee extension angle was reduced from 15-20 degrees to neutral during mid-stance (Figure. 3). Gait deviations like

excessive lateral trunk bending, involuntary movements were controlled with the use of orthosis as evident from OGA. There was proper initial contact (Figure. 4a) resulting in heel to toe gait with SKAFO compared to toe gait in bare foot conditions (Figure. 4b) observed in foot prints during 10 meter walk test.



Figure. 3 showing control of hyperextension and heel rise during midstance



Figure. 4a showing proper heel strike



Figure. 4b showing toe gait

The results of temporal-spatial gait parameters are presented in Table. 1

Table. 1

Walking Conditions	Stride Length (cm)	Step Length (cm) (Lt/Rt)	Cadence (Steps/min)	Velocity (meter/min)
Bare foot	47	20/28	60	10.8
With SKAFO	65	29/36	84	15.1

The results of energy parameters are presented in Table. 2

Table. 2

Walking Conditions	Heart Rate (beats/min)	PCI (beats/meter)
Bare foot	76	0.74
With SKAFO	72	0.27

### DISCUSSION

The intent of this paper was to study effects of SKAFO for ambulatory CP subjects walking with knee hyperextension and heel rise by comparing it with bare foot. From the results, it was observed that SKAFO was effective in controlling knee hyperextension and resulted in stable,

natural, satisfactory and energy efficient gait in spastic CP with knee hyperextension and heel rise. This may be due

to the fact that control of excessive hyperextension of knee resulted in minimal displacement of center of gravity in either direction, thereby consuming energy. Further, it requires more time for the subjects to bring their limb from hyperextension of knee in mid-stance to flexion required during pre-swing. This may result in increase in walking velocity, step and stride lengths. Earlier researches have observed that preventing plantar flexion through the use of orthosis has been found to improve walking efficiency in children with spastic diplegic cerebral palsy and in children

with cerebral palsy. [14, 15] Rosenthal RK et al found that the genu recurvatum was well controlled and gait was improved by a fixed-ankle, below-the-knee orthosis for the management of genu recurvatum in spastic cerebral palsy. [16] However, it is also important to mention that some of earlier researches found confusing results. Although a



variety of AFO configurations have been proven to prevent ankle equinus during the stance and swing phases of gait, their effect on proximal joint kinematics and kinetics, energy expenditure, and functional skill performance remains uncertain. [17] There is little evidence in the literature showing effectiveness of AFOs in children with CP, and the variability in different studies makes it difficult to compare the results. [18]

Further, temporal-spatial gait parameters for CP subjects by using AFO were found to be conflicting in earlier researches. In a systematic review, Figueiredo EM et al found that stride and step length, gait velocity, and single support time did not show any single trend with the use of different designs of AFO. Similarly, the researchers also reported increased double support time with the use of Solid AFO. Cadence decreased with different AFO designs when compared with no AFO. In another two studies, the authors reported no change in cadence with different AFO.[19] These conflicting results of AFO require a thorough, systematic orthotic design utilising better le-

ver function and its application in spastic CP.

Considering that knee hyperextension with heel rise in spastic CP is difficult to control, orthotic prescription rationale is based on the degree of deformity, degree of correct ability, potential functional abilities of the patient, and anticipated gait training protocols. Generally, knee orthoses are not indicated [10] for triplanar and/or severe forms of genu recurvatum as they do not realign the distal base levers or compensate for weakness of the quadriceps or posterior calf group without a locking knee mechanism. Locking the knee joint, which increases metabolic costs, serves to essentially lengthen the limb during swing phase. Further, AFO applications are suggested up to 10-15 degrees of genu recurvatum only. Most studies discussed by earlier researchers were based on solid or hinged ankle-foot orthoses (AFO) but not even a single study was found on SKAFO for CP. Therefore there was a requirement to study these subjects with an orthosis like molded SKAFO which immobilise ankle in neutral position and provide full range of knee flex-

ion-extension without locking it, resists genu recurvatum by force couple and provides mediolateral knee stability too. In an attempt to use SKAFO on spastic CP subjects with knee hyperextension and heel rise, we found good results. However, this is a pilot clinical trial including less population, so results can't be generalised. Similar study involving case series can be used to set the prognosis of ambulation and the kind of orthotic interventions needed to optimize the walking ability.

## CONCLUSION

The results of our study suggest positive effects of the use of molded SKAFO on gait kinematics as well as on functional activities related to mobility of subjects with spastic CP. The orthosis was found to be successful in controlling knee hyperextension, achieving heel to toe gait, improving temporal-spatial gait parameters and resulted in energy efficient gait. However, future studies with objective outcomes and modern instrumentation are encouraged to provide valid and applicable evidence to support their clinical practice.



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## PROCEEDINGS REPORT.

### MRS. SHOBHA SUNDAR - COORDINATOR-FPD

CME done at Spastics society of Karnataka premises, Indira nagar-Bengaluru, on 12th April , 2015; Sunday; 9 a.m. - 2 p.m.

TOPIC: Brain-vision mystique-Unifying trends in diagnosis & management of vision abnormalities in cerebral palsy.

Conducted by Foundation for prevention of disabilities in collaboration with Indan Academy of Cerebral Palsy & Spastics society of Karnataka

The CME incidentally the first developmental clinic was inaugurated by Mr.S.P Acharya- Founder of FPD advocating the need for rehabilitation science research to be done by Indian doctors by developing culturally appropriate infrastructure & be leaders of some sort in the future. Dr. Krishnaswamy – member, scientific advisory committee also stressed on encouraging scientific thinking & developing suitable

bioengineering models to help inclusion of special children to main stream society. Mrs. Krishnaswamy – Director, SSK lauded the leadership qualities & vision of Foundation & said that this is the only organization in India among NGOs working on all preventive aspects & hoped better training of doctors & therapists under Foundation's support will improve services to children & adults in the long run. Dr. Mahadeviah, Medical director & scientific advisory committee member outlined the purpose behind doing developmental science clinics & wished the proceedings great success.

16 medical professionals & 22 therapists participated in the proceedings.

The morning session was begun by Dr. Shashikala, Medical director of FPD introducing statistics on the changing trends in health care, prevalence of preterm births as the leading cause of cerebral palsy, the incidence of various visual abnormalities in different types of cerebral palsy & the reason for change in thinking on impairments & their consequences. She outlined the importance of environ-

ment from intrauterine life, various child developmental models & in understanding disease as a psychosocial phenomenon. She briefly introduced the concept that we now have moved on to health measurement in terms of quality of life & how this care model is a departure from the traditional cure model taught in medical training.

She gave examples for the concept of rule in approach of International classification of Functioning, disability & health-WHO 2001 using the example of reading difficulty & contrasted it with the rule out approach & curative obsession practiced by medical practitioners. She then outlined the 6 box analogy of ICF on impairment leading to limitation in activities & then affecting participation in a nonhierarchical way. ICF Terms of function, participation, capacity, performance & capability were defined. Role of contextual, personal factors as well as multiple points of entry for interventions & interventionists were highlighted. Dr. Amarthya Sen's Capability approach was touched upon & the role of choice in achieving well being in developing country setting was emphasized.



A small note on visual plasticity special features, model of intervention as per ICF domains were presented & in conclusion she showed the proverbial analogy of elephant & blindfolded people & exhorted the need for interdisciplinary knowledge which will come only by knowing & seeing from different perspectives including family perspectives.

This was followed by a clinical method training module on visual acuity assessment by Dr. Sangeetha Sriram from St. John's medical college. She actually demonstrated the examination methodology with videos on the various details of vision evaluation, binocular, mono ocular evaluations, different tests for confirmation, test materials used & the techniques with a small note on Strabismus. The exhibited videos were wonderful demonstration materials. She highlighted the importance of adjusted head posture as a useful indicator of vision impairment. She also outlined the normal protocol for strabismus evaluation as 3 months to 6 months after refractive error correction & explained the method of eye patching.

Dr. Shashikala then raised the question of how early to operate squint & if there was a consensus on this. Dr. Sudha & Dr. Usha-H.O.D from St. John's medical college answered that this varies from case to case & its severity. Response to patching, concomitant response to RE correction & corrective rehabilitation program were emphasized as progressive strategies. Dr. Usha also emphasized observing the spontaneous behavior of the child without letting him/her know that he/she is being observed when he/she is playing while waiting to be examined. Mechanism of balancing extra ocular muscle action operatively was also explained by the senior consultants. Surgery as early as possible as per the indicators clinically detected by experts were advocated

Dr. V.N. Sudha - Senior ophthalmology consultant from Spastic society Of Karnataka talked on the relatively unknown & complicated concept of Cortical visual impairment [CVI]. She first defined Delayed visual maturation & its classification into 4 types- detailed features, their anatomical pathways. Decreased light sensitivity & light

gazing, delayed as well as fluctuating response as early signs of CVI, implications of delayed visual closure & later effect on reading, types of visual memory, figure background discrimination, mechanism of letter reversals were very well described.

Dorsal & ventral stream dysfunction along with the function subserved by these pathways were clarified. Her description of occipital cortex along with temporal lobe as Visual library was very vividly done. Role of Visual evoked potential & its non relevance up to 16wks post natal age was also highlighted. Importance of detecting cortical field loss was also delineated & commonly noted inferior field loss & its effect on walking & practical implications to therapists was explained.

Dr. Chitralkha Dey - Vitreo Retinal surgeon from Prabha eye clinic then covered the topic of very commonly prevalent ophthalmic manifestations of Prematurity. She briefly described the development of visual apparatus from 7th IUL & how they progress postnatally & the common visual disturbances associated with prematu-



ity. She also highlighted the less known increased incidence of later reading problems in NICU graduates. The pathogenesis of retinopathy of prematurity, their 5 stages, their treatment modalities & long term consequences of photocoagulation therapy were very well done with clear photographs & the under anesthesia exam with Retcam was demonstrated with a video. She stressed that premies with ROP treatment with photo coagulation are left with central vision only which was a very useful information to therapists.

Dr. Nagaraj.S , Imageologist from Akash hospital then demonstrated the various MRI pictures affecting visual cortex- starting from delineation of anatomy of visual cortex, blood supply & how their involvement was delineated by imaging. The imaging pictures of periventricular leukomalacia, encephalomalacia cystica, USG follow up of a progressive IVH , Posterior cerebral artery infarct in an adult were also shown. He explained the reasons for the need for an MRI before two years in every case of cerebral palsy as per AAN guidelines & what they

show with regard to timing of brain injury, pathogenesis of the clinical problem. Dr .Shashikala supported his case MRI images with probable cp types & relation with the functional correlations. He also brought out difficulty in adequate reporting as most clinicians just refer the cases without complete clinical descriptions.

There was a lengthy but useful presentation on Visual rehabilitation By Mrs. Padmavathy Bhashyarangam from Shankara Eye hospital. She presented the various clinical deviations, their identification , Method of functional vision evaluation, Progressive development of visual skills from focusing to ADL to reading & writing skills, interdependence of vision with touch & sound & showed all the equipment used in vision rehabilitation from simple home made things to toys to high tech computer devices, Her particular accent on interdisciplinary approach to early intervention from physio , occupational & speech therapists along with pediatrician & ophthalmologist including vision rehabilitation specialists was very well done with great emphasis on overall benefits to child &

was well received. She differentiated between vision therapy & visual stimulation therapy.

There were then 5 case presentations & discussions on interdisciplinary management.2 cases from Ssk transitional care unit & 3 cases from early intervention unit were discussed. The two cases from older age group were discussed by Dr .Rubysing-Sr Therapist from SSK, Dr. Shashikala & Dr. Sudha. There was a correlation with severity of cp, MRI, EEG & classroom difficulties. Visuo perceptual deviations detected were shown to delegates & DR. Sudha discussed management at home to solve some issues like bumping on others, difficulty in locating objects. Mrs. Padmavathy was asked to elaborate on the rehab methods as also Dr. Ruby 's solutions with sensory integration methods. 3 cases from early intervention unit were presented by Dr. Shalini Goyal & difference between vision therapy & visual stimulation were discussed. Dr. Shashikala stressed again on correlating clinical type of cp with MRI & EEG pictures. She highlighted using imaging findings in CP cases like those with Posterior ventricular



leukomalacia to anticipate visual impairments from early diagnosis stage itself, seek experts help & pass it on to therapists. Severity of vision impairments are not always related to the severity of Cp as the two older age children had mild cp as per GMFCS with incapacitating visual impairments. One case from younger age group had severe parietal lobe damage with global EEG dysrhythmia & Dr. Shashikala suggested that along with the dorsal stream dysfunction this child is likely to have, the effect of anti-epileptic drugs like vagabantine on cognition & synaptogenesis must also be remembered.

Visual prognosis with the interdependence of vision with touch, sound & motor functions in all cases were discussed & team approach with multidisciplinary case conferences & proper information to parents were stressed upon. Dr. Sudha & Dr. Shashikala concluded by saying developmental surveillance & visual surveillance done simultaneously are the way forward for early & complete diagnosis for achieving optimality through rehab methods & not to stress on normalizing vision & development

all the time.

Hopefully, the riddle of Brain vision mystique was given a reasonable solution by all the faculty. All the delegates & the KMC observer were happy with the level of interactions, information dissemination & many solicited a longer program on these topics.



## ROLE OF PAEDIATRICIAN DURING LABOUR AND DELIVERY PERIOD - GOLDEN MOMENTS FOR PRIMARY PREVENTION OF CEREBRAL PALSY

DR. R PREMALATHA, PROFESSOR & HEAD, PEDIATRICS,  
BMCRI, BANGALORE

There's an adage that an ounce of prevention is worth a pound of cure – this is especially true in cases of cerebral palsy because there is no cure. Hence new knowledge regarding causative factors and pathogenesis is required, so that preventive strategies can be planned and implemented. Often the cause of cerebral palsy is not known, and nothing can be done to prevent it. However, some important causes of cerebral palsy can be prevented in many cases, including premature birth, low birth weight, infections, and head injuries.

Prior epidemiologic studies suggested that 69% of cerebral palsy were the result of factors occurring prior to the onset of labor, whereas only 29% were associated with intrapartum events and only 5% could be exclusively linked to

intrapartum factors. Major risk factors included preterm and post term birth, fetal growth restriction, pre eclampsia, peri-natal infections, chorioamnionitis, maternal thyroid disease, placental abnormalities, infertility treatment (with resultant multiple gestations and prematurity).

Recent MRI data in neonatal encephalopathy has improved our understanding of etiology and timing of insult to growing brain. By using MRI (24-96 hours of birth) to reassess intrapartum factors, scientists now suggest a far more common role for peripartum and intrapartum factors (1). MR spectroscopy measures the presence and relative abundance of specific molecular markers of neural injury (eg, lactate-to-N-acetylaspartate ratios) over specific locations in the brain (eg, the thalamus). While early MRI assists in timing insults, repeat MRI at 10 days (7–21 days) can characterize the extent of lesions and provide prognostic information.

Recent studies suggest that majority of term Neonatal encephalopathy (NNE) cases are in fact acute and due to potentially avoidable causes, amenable to quality im-

provement such as training of staff in fetal surveillance in labor (2). Two primary patterns of acute neural injury have been observed that are associated with CP: a) basal-ganglia-thalamus injury and b) watershed or borderline cortical white-matter injury (3). Animal studies suggest that the former pattern is associated with acute, near-total “asphyxia” and the latter with a less severe but more prolonged asphyxia process. The impact of hypoxic-ischemic insults on the fetal and neonatal brain is dependent on not only the severity and duration of oxygen deprivation but also gestational age. In addition, prior chronic hypoxia and nutrient deprivation due to utero-placental and vascular pathology have strong link to fetal growth restriction and CP.

Genetic susceptibility factors such as polymorphisms for cytokine genes may also exacerbate inflammation-associated neural damage following HIE, helping to explain why low Apgar scores and umbilical artery pH values are such poor predictors of eventual outcome. Also, most of the damage due to hypoxic-ischemic events occurs fol-



lowing reperfusion. Hypothermia therapy blunts reperfusion injury to growing brain. Absence of discrete findings on early MRI in an infant with apparent NNE should suggest genetic causes (eg. chromosomal micro deletions and inborn errors of metabolism) and can trigger timely and potentially lifesaving interventions.

#### Role of obstetrician in prevention of CP

##### 1. BEFORE PREGNANCY:

Prepare women for healthy pregnancy by scheduling a pre-pregnancy visit, so they can be advised regarding the following.

- Avoid using cigarettes, alcohol and illicit drugs during pregnancy; these increase the risk of premature delivery.
- Unnecessary exposure to antenatal x-rays should be avoided.
- Prevent TORCH (toxoplasmosis, rubella, cytomegalovirus, herpes simplex) infections by immunization where possible and institute quick treatment when encountered.

- Folic acid supplementation to at risk women

##### 2. DURING ANTENATAL PERIOD:

Prevention and treatment of the following conditions

- Infections should be screened for and treated early like bacterial infections, urinary tract infections, chorioamnionitis (Escherichia coli, Group B streptococcus and methicillin-resistant Staphylococcus aureus), viral infections (chickenpox) and TORCH infections.
- Premature birth – Preterm infant faces an increased risk of developing cerebral palsy. The risk is even greater if it is associated with low birth weight. Prevention of preterm birth by specific approaches and when preterm delivery is imminent use of glucocorticoids to enhance lung maturity helps prevent CP. Magnesium sulphate infusions may reduce the incidence of CP in premature infants. The mechanism of this therapy is due to a neuroprotective effect of antenatal magnesium sulphate. Preterm neonates are also at risk of infection.
- Multiple births -Twins, triplets and other multiple births have a higher risk for CP, especially if a baby's twin

or triplet dies before birth or shortly after birth. Some, but not all of this increased risk is due to the fact that children born from multiple pregnancies often are born early or with low birth weight, or both.

- Assisted reproductive technology (ART) infertility treatments Increased risk of CP is explained by preterm delivery or multiple births, or both; both preterm delivery and multiple births are increased among children conceived with ART infertility treatments. Can be prevented by reducing the chance of a multiple pregnancy (twins, triplets, or more), by transferring only one embryo at a time.
- Medical conditions of the mother- Hypertension, diabetes, severe anemia, chronic illnesses, thyroid problems, iodine deficiency, intellectual disability, or seizures have a slightly higher risk of having a child with CP.
- Blood incompatibility – Testing for Rh factor and treating with Rh immunoglobulin.
- Screening and treatment of asymptomatic bacteriuria, prevention of chorioamnionitis with prophylactic



antibiotics in premature rupture of membrane

- Antiplatelet drugs to prevent preeclampsia
- 17 $\alpha$ -progesterone caproate, and cervical cerclage for women with previous preterm birth and short cervix.
- Fetal distress – Due to placental abruption, pre-eclampsia, eclampsia, uterine rupture or multiple pregnancies. An emergency LSCS may be required in these cases to prevent HIE.
- Genetic disorders – Recent research indicates that genetic factors play a major role in CP. Hence prenatal testing and counseling are important.
- Identification of high risk pregnancies and in utero transfer to tertiary care centers

### 3. DURING BIRTH: ROLE OF OBSTETRICIAN

As recent MRI data suggests intra partum and peripartum events are more often causative factors for CP, increased attention must be placed on optimizing intrapartum monitoring (2,4). Intrapartum event as a cause of cerebral palsy is more likely if significant fetal acidosis (such as pH < 7.0) and neonatal encephalopathy are observed. While

these events might be the result of intrapartum hypoxia, they might also be the result of fetal infection.

Intrapartum asphyxia can some times be prevented by avoiding some “sentinel” events and by responding appropriately to cardiotocograph (CTG) anomalies. The (CTG) is a screening tool that is used to assess fetal well-being during labour. Identification of the possibility of asphyxia and taking timely and appropriate action based on the findings may help prevent birth asphyxia. Additional factors, which help in identifying asphyxia, include

- A well-documented partogram
  - Complete analysis of fetal blood sampling for pH or lactate
  - Placental pathology to detect occult thrombotic processes affecting the fetal circulation, patterns of decreased placental reserve and adaptative responses to chronic hypoxia, and evidence of chorioamnionitis
- Complications during labor and delivery causing HIE include:
- Breech delivery and Shoulder dystocia – Cerebral

palsy is four times more likely to occur following breech delivery.

- Umbilical cord compression / prolapse – Compression of the umbilical cord can occur during uterine contractions leading to fetal hypoxia or anoxia.
  - Placenta previa or Placental abruption
- Delivering these fetuses by cesarean sections may prevent CP.

4. ROLE OF PEDIATRICIAN DURING LABOR AND DELIVERY: Pediatrician should monitor the growth of the fetus along with the obstetrician from conception and discuss intervention required if there are high risk factors. For example, a simple intervention like correcting anemia in a pregnant mother will improve fetal wellbeing greatly. High-risk mother should be identified early and transferred to delivery units, which are attached to Level 2 or Level 3 NICU. Pediatrician should anticipate neonates who may require extensive resuscitation and be prepared. Most newborns require no/minimal assistance. Only 10% requires assistance to begin breathing at birth and 1% re-



quires extensive resuscitative measures.

First Golden Minute Project: emphasizes skill based training on following steps:

- Anticipation
- Presence of skilled personnel
- Adequate preparation of the resuscitation station and equipments

- Accurate evaluation
- Prompt initiation of support

1. Initial steps, which are required for all neonates

- Provide warmth
- Head position in “sniffing position”
- Clearing the airway
- Drying the baby
- Tactile stimulation for breathing

2. Ventilation-required in 10% of neonates

3. Chest compressions-required only in 1% of neonates

Rarely administration of epinephrine & /or volume expansion is required.

Golden minute

- In <30 seconds: complete initial steps  
Warmth, Drying, Clear airway if necessary, Stimulate
- 30-60 seconds: assess 2 vital characteristics  
Respiration (apnea/gasping/labored/unlabored) and  
Heart rate (<100/>100bpm)  
By <60 seconds of birth  
If gasping/apnea or if heart rate<100 beats per minute  
Start PPV (positive pressure ventilation) and  
Spo2 monitoring by pulse oximeter  
(Simultaneous evaluation of 3 vitals-HR, respiration and  
oxygenation Status)  
If HR remains <100 beats per minute
- Endotracheal intubation
- Chest compression
- Drugs

Neonates requiring extensive resuscitation may be at risk of HIE and they may benefit from hypothermia therapy. Using room air for resuscitation also reduces oxygen induced cerebral damage.

SUMMARY:

Everyone has a role in preventing cerebral palsy  
After a child is diagnosed with cerebral palsy, a parent is likely to ask, “How did this happen to my child?” and “How could this have been prevented?”  
Preventing it requires the involvement of the medical and research communities, as well as the government.  
Government’s role in cerebral palsy prevention centers on training of health workers, nurses and doctors in emergency obstetric care and essential newborn care & neonatal resuscitation. Setting various levels of neonatal care units with equipments and skilled personnel has provided much required newborn care services in all remote areas. Providing transport in the form of 108 ambulances has benefitted many high-risk mothers and neonates requiring tertiary care to be transferred to such facilities in time. Collecting data electronically from all neonatal care units across the country and analyzing the causal factors through its various agencies, including the National Health Mission and UNICEF is on going and will provide



much needed information regarding preventive factors. Data compiled by the government on preventative factors will help in allocating funds and resources to vital areas in future.

Research communities will help in formulating preventive strategies and labor room management guidelines. Adherence to these guidelines may protect the Obstetricians and Pediatricians from medico-legal threat and “cerebral palsy lawsuits”, apart from preventing cerebral palsy.

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asphyxia

Presentations: A summary of the findings of this study were presented as a poster presentation at the RCOG/RANZCOG World Congress 2015 in Brisbane Australia 12-15 April and at the PMMRC Conference 2015 in Wellington, New Zealand 17 June. Published Online: December 23, 2015

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## EB Meeting

## GB Meeting

## MINUTES OF EB MEETING

VENUE: SVNIRTAR, CUTTACK, ODISHA

DATE: 18TH DECEMBER 2015

ATTENDED BY: Dr. M. Mahadeviah, Dr. AshokJohari, Dr. Shashikala, Dr. Asha Chitnis, Dr. Sakti Das, Dr. Samanta, Dr. Shelke, Dr. Dhruv Mehta, Dr. Madhavi Kelapure.

Mr. Mallikarjuna, Dr. A.K. Purohit, Dr. AnitaSuresh, Mrs. Shobha Sunder could not attend the meeting.

## AGENDA:

1. Financial statements of Accounts
2. IACP Journal
3. Conference guidelines
4. Board of Directors
5. Newsletter
6. Website
7. CP day
8. Donations
9. New members in EC
10. IACP Fellowship Program

## 11. CME Vs Annual Conference 2016 Bangalore

**F**inancial statements of Accounts from organizers of Lucknow and Hyderabad conferences should be politely asked for submission as it is a long pending issue. Resolution to be made: If statement is not provided within 3 months of the conference, then disciplinary action will be taken against the responsible person.

IACP JOURNAL: The present state of IJCP journal should be asked to Dr. A. K. Purohit. The EC agreed to not have a journal as we are not capable for the same. At present it is premature. Should be ratified in the GB. **CONSENSUS IN THE GB IF IACP SHOULD HAVE A JOURNAL. IF GB VOTES FOR IT, THEN WE NEED TO HAVE A STANDARDIZED PROCESS OF SELECTION OF EDITORIAL BOARD, TENURE OF THREE YEARS ETC. THE EDITORIAL COMMITTEE SHOULD HAVE MEMBERS OF IACP. THE ADVISORY COMMITTEE FOR JOURNAL CAN HAVE EMINENT PROFESSIONALS OUTSIDE IACP. BUT A PRIOR CONSENT SHOULD BE TAKEN FROM EC FOR THE SAME. STANDARD OF THIS JOURNAL SHOULD BE MAINTAINED SO THAT IT BECOMES AN ASSET TO IACP.**

**CONFERENCE GUIDELINES** to be finalized again. No private consultations should be done in the venue premises. Family forums should not be charged. Response to letter seeking explanations of such activities in past from Dr. A. K. Purohit and Dr. Vipul Shah.

**BOARD OF DIRECTORS:** The resolution was passed in Hyderabad GB. Roles and responsibilities of BOD to be ratified on the 19th Dec in GBM. Mainly to strategize, supervise, guide and look into the role of EC. Role of BOD to be ratified in GB. Any disputes or decision which cannot be passed by the EC should be extended to the BOD, which will work in the interest of IACP. BODs will continue in a rolling manner. Any recall of this board should take place with consensus of the GB. Disciplinary action can be taken if any member/s of BOD do not respond to repeated communication or if any act is carried out to damage the reputation of IACP.

**NEWSLETTER:** EC decided to have one Newsletter per year. It should be E newsletter. Newsletter should not have a theme. It should have all updates and activities of IACP. Dr. Harish Badiger/ Dr. Sanket Khadilkar will be in charge



## EB Meeting

## GB Meeting

It should be E newsletter. Newsletter should not have a theme. It should have all updates and activities of IACP. Dr. Harish Badiger/ Dr. Sanket Khadilkar will be in charge of e-Newsletter

**WEBSITE:** EC and GB should appoint one person as a web-master. Dr. Harish/Dr. Sanket. They can decide to have their own committees for the same.

**CP DAY:** Program criteria to be clarified and sent by EC to all the members in advance. These will be classified as High, Medium and Low impact programs. Theme for next year could be 'Healthy mother healthy child' to aim towards maternal health, primary prevention of cerebral palsy. Pre, Post & Perinatal Preventive factors can be highlighted in this theme.

**DONATIONS:** Dr. Ashok Johari suggested that we should have a separate IACP foundation. It will be a national body, which will receive donations and as the body will have programs for social cause, will get 80G. If there are surplus funds from a particular program, they will be transferred to the same person in next year who had shared the funds.

**EXECUTIVE MEMBER:** For personal reasons, Dr Anita Suresh & Mrs. Shobha Sundar have verbally conveyed that they want to resign from the post of members of EC. In such a situation, the EC & BOD has decided to co-opt 3 new members - Laxit Doshi from Ahmedabad, Harish Badiger & Sanket Khadilkar from Mumbai.

**IFNR:** IACP was invited to be a part of WFNR conference which is to be held in 2018 in Jaipur. The BOD & EC have decided to convey to Dr. Nirmal Surya, that IACP will only be an Academic Sponsor/partner & IACP will have its own separate conference.

**CME Vs ANNUAL CONFERENCE 2016 BANGALORE:** The EC & BOD decided that we will continue low budget annual conference. (BOD – Dr. Johari said that we are ready to come on our own & will pay for our hospitality. The organizing committee of Bangalore should not be responsible for hospitality).

Theme of the Conference 2016 Bangalore: 'NEURO-PLASTICITY OF THE GROWING BRAIN'

**IACP FELLOWSHIP PROGRAM:** The Fellowship program tenure would be for 2 or 3 months. Dr. Shashikala will

revise the curriculum and send the program to the overall program director Dr. Sakti Das. And we have identified 3 zones: Mumbai, Bangalore & Cuttack - NIRTAR. The Program director for Mumbai is Dr. Asha Chitnis, for Bangalore Dr. G Shashikala & for Cuttack – NIRTAR Dr. Sakti Das.

This is an EC Decision, **not to be discussed in GB**

**CHANGE OF NAME:** We need to take a consensus legal decision from a lawyer (the law has been passed 2 years ago. If we go for a new name, the domain name "Indian" will not be given.) So, following names were suggested: IACP and Childhood Disability (IACPCD) & IACP and Developmental Disability (IACP & DD). The President said that if we do not get "Indian" name, we can go for National Academy of Cerebral Palsy and Childhood Disability.

Forwarded by the order of IACP EC

Yours sincerely,

President

General Secretary



## MINUTES OF 10TH GENERAL BODY MEETING OF IACP

**DATE:** 19th December 2015;

**TIME:** 4:30pm onwards,

**VENUE:** Kalyan Mandap, Cuttack, Odisha

**PARTICIPANTS:** Dr. Shashikala, Dr. Asha Chitnis, Dr. Sakti Das, Dr. Dhruv Mehta, Mr. Mallikarjuna, Dr. Ashok Johari, Dr. Mahadeviah, Dr. A.K Purohit, Dr. Madhavi Kelapure, Dr. Shankar Shelke, Dr. Sandip Samanta, Dr. Saroj Jha, Dr. Vinod Kumar Tewari, Dr. Sanket Khadilkar, Dr. Harish Badiger, Dr. Sanjay Keshkar, Dr. Nilay Kanti Das, Dr. Mohdquadeer Qadeer, Dr. Mansoor Alam, Dr. Jagriti Singh, Dr. N.K. Pandey, Dr. Vinay Srivastava, Sanjay Dwivedi, Dr. Deepchandra Gupta, Dr. Laxit Doshi, Dr. Trupti Nikharge, Dr. Hiral Shah, Hirendranath Das, Arindam Seth and Dr. Nigamaja Hariharan

**DURATION OF MEETING:** 1 Hour 30 Minutes

**AGENDA:**

1. Minutes of last General Body Meeting
2. Venue for 11th annual conference
3. Journal of IACP

4. New members on the EC

4. Statement of Accounts

# TOPIC

DISCUSSION

1 **WELCOME** The meeting started with welcome note by the President Dr. Shashikala. Since there was no quorum the meeting was adjourned and restarted after 20 minutes.

2 **MINUTES OF LAST GENERAL BODY MEETING** General Secretary Dr. Asha Chitnis read out the minutes of last General Body Meeting 2014, Hyderabad. All the points were passed. Matters arising out of those minutes were discussed which are as follows

3 **VENUE FOR 2016 ANNUAL CONFERENCE** According to the last minutes, venue for next conference was Pune. Dr. Shashikala explained that the venue has been changed to Bangalore as she had a sponsor and a back up organization. But due to her ill health and no financial support (sudden demise of the sponsor); it would be very difficult for her to host the Conference though she would try. She also said that she would definitely be in a capacity to hold a 2 day CME.

Dr. A. K. Purohit said that a lapse in the annual conferences would be inappropriate. At this point Dr. Purohit and Dr. Tiwari left as they had to catch a flight.

Before leaving, Dr. A. K. Purohit explained why we need Journal of IACP. He stated that we should continue the publication in order to encourage research in Cerebral Palsy in the country. It will also motivate our young professionals to develop the habit of writing research articles.

4 **IACP Journal (IJCP)** Dr. Asha Chitnis briefed the GB about the discussion held with Dr. A. K Purohit, Board of Directors and the present EC regarding the state of IACP journal. This discussion had taken place in the pre GB Executive Body meeting.



The EC & BOD were not aware of the details of the contract of IACP with Medknow Wolter Kulwer for the journal. Similarly, they have no details of 2nd issue which is already gone to the printers. Dr. A. K. Purohit was very pertinent about continuing the journal. He also said that he is ready to bear the entire cost of the journal and IACP will have no obligations at all towards IJCP. So it was told to him that we will put forward the matter to the GB for voting. Dr Asha on behalf of the EC said that the members of EC still stand by the decision of not continuing with the journal as the body is not yet prepared to produce high quality research articles. So the matter was put forward to the GB with voting for and against having the journal. 13 members voted for the journal and 16 were against it.

Since Dr. A. K. Purohit on behalf of IACP has already signed a contract of Rs 1.20 lacs with Medknow Wolter Kulwer, we would lose the money in case we decide to discontinue. Keeping in mind this logistic, the GB decided to let him continue for a year as the Editor. GB also decided that we should have only E journal.

For this one year duration, there should be transparency in the journal activities. Each and every matter should be communicated with BOD & EC. Dr. Johari said if we need to go ahead with the journal we need to amend the constitution to regularize the process to create a Post of editor with the editorial board. Eligibility criteria for selection of the same & CV of interested individuals will be advertised through the Newsletter & Web site. The Selection criteria should include

1. Has been involved as an Editor or Editorial Board Member of a recognized journal
2. Has been involved as a first author for 3 publications in National or International in-

dexed journals.

3. Would ensure self sufficiency in continuing the journal without any financial burden on IACP

5 **NEW MEMBERS ON THE EC** Dr. Sakti Das agreed to take official charge from Mr. Mallikaarjuna as treasurer of IACP. It was proposed by Dr. Shashikala to have two signatories for bank work. Dr Sakti Das & Mr. Mallikarjuna will be the two official Signatories to sign the cheques.

GS, Dr. Asha Chitnis briefed the GB that two members of EC, Shobha Sunder, & Dr Anita Suresh have resigned so the EC has co-opted three members Dr. Laxit Doshi, Dr. Sanket Khadilkar & Dr. Harish Badiger. GB congratulated Dr. Sanket & Dr. Harish for having done a great job of the IACP Facebook page

6 **STATEMENT OF ACCOUNTS** Financial statements of IACP accounts for October 2014 -Dec 2015 as well as the IACPCON 2014 Hyderabad were read out by Mr. Mallikarjuna. GB passed the annual statement but the IACPCON 2014 Hyderabad accounts need to be studied in details which was not possible due to inauguration of the conference. Meeting was adjourned.

FORWARDED BY THE ORDER OF IACP GENERAL BODY

Yours sincerely,

President

General Secretary

Inc. & Exp  
AND B/S

## INDIAN ACADEMY OF CEREBRALPALSY

## INCOME AND EXPENDITURE FROM 15.10.2014 TO 15.12.2015



EXPENDITURE	Rs.	INCOME	Rs.
Website maintainance & domain	6,000	Opening Balance	1,11,056
Returned cheques(LM)	5,000	Cash at Hand	2,000
CME Expenditure	15,000	By Life Membership	58,500
Bank Charges	264	By Donation	22,165
		By Bank Interest	4,876
		Fixed Deposits	3,20,077
		FD interest	17,198
Cash at Hand	2,000		
Cash at BANK	1,70,333		
FIXED DEPOSITE	3,37,275		
	5,35,872		5,35,872

## BALANCE SHEET AS ON 15.12.2011

LIABILITIES	Rs.	ASSETS	Rs.
Printing &Posting Newsletter	28,000		
Website Designing	10,000	Cash in Hand	2,000
		Cash at Bank	1,70,333
		FD	3,37,275
		(at Andhra Bank,Hyd)	



 **INDIAN ACADEMY OF CEREBRAL PALSY**  
**MEMBERSHIP APPLICATION**

I. Name in full: .....  
(Block letters) First Name Middle Name Surname

II. Designation: ..... Dept.: .....

III. Experience in the field of Cerebral Palsy (No of years): .....

IV. Official / Institutional address: ..... H.No. .... Road No. ....  
Cross ..... Colony ..... City ..... District .....  
State ..... Country ..... Pin/Zip ..... Email: .....

V. Residential address: ..... H.No. .... Road No. ....  
Cross ..... Colony ..... City ..... District .....  
State ..... Country ..... Pin/Zip ..... Email: .....

Tel: (R) ( ) ..... (O) ( ) ..... (M) ..... Fax ( ) .....

VI. Date of Birth: ..... Male / Female VII. Nationality: .....

VIII. Educational qualification (If multiple degrees - kindly use bottom blank columns):

S.No.	Qualifications	Speciality	Name of the University / College	Year of Passing
1.	MB. BS.			
2.	DCH			
3.	MD / DM			
4.	MS / MCh / DNB			
5.	BOT / MOT			
6.	BPT / MPT			
7.	Psychology			
8.	Spl. Education			
9.	Others (Specify)			
10.	Prosthetist / Orthotist			
11.	Biomedical Eng.			
12.				
13.				

**IMPORTANT:**  
CLICK ON THE ABOVE ICON  
TO DOWNLOAD THE  
MEMBERSHIP FORM

# MEMBERSHIP FORM



IACP

10th IACP ORISSA CONFERENCE 2015

ARTICLES / PAPERS

MINUTES OF MEETING

FINANCIAL STATEMENTS

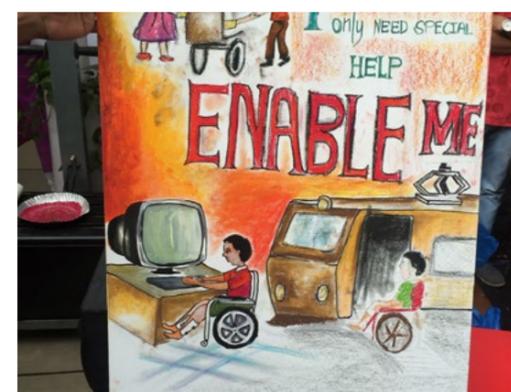
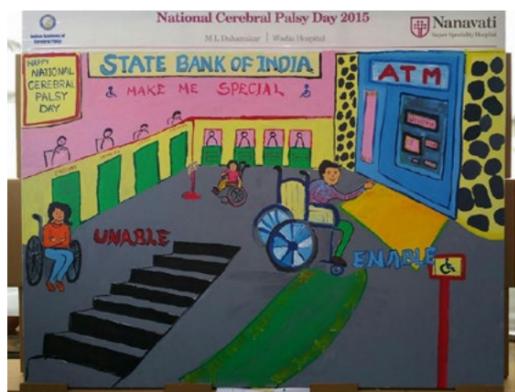
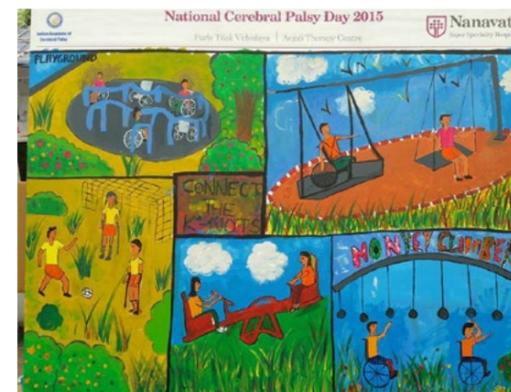
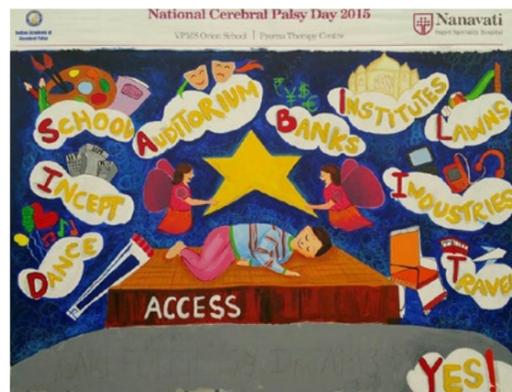
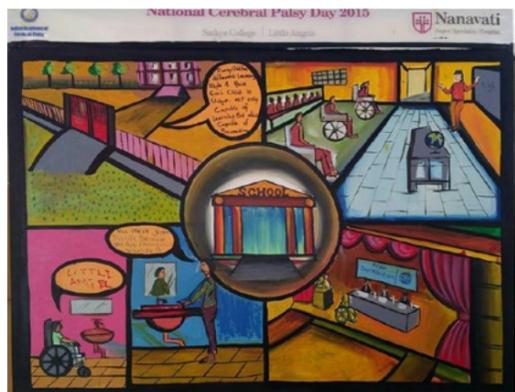
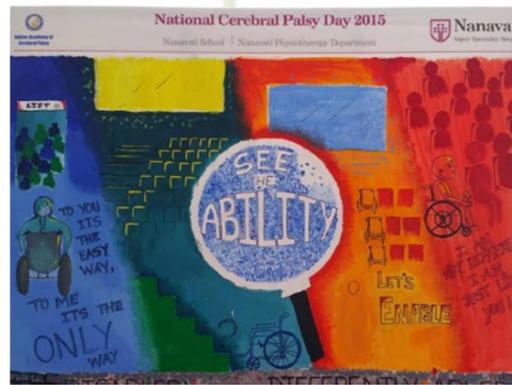
MEMBERSHIP APPLICATION FORM

PHOTO GALLERY

UPCOMING CONFERENCE DETAILS

CP Day

10th IACP CON, ORISSA





IACP

10th IACP ORISSA  
CONFERENCE 2015

ARTICLES /  
PAPERS

MINUTES OF  
MEETING

FINANCIAL  
STATEMENTS

MEMBERSHIP AP-  
PLICATION FORM

PHOTO  
GALLERY

UPCOMING CON-  
FERENCE DETAILS

CP Day

10th IACP CON, ORISSA





# 11th IACP CONFERENCE BANGALORE KARNATAKA, INDIA 2016

## 11TH IACP CONFERENCE, BANGALORE, KARNATAKA, INDIA – 2016

DATE : 25th, 26th and 27th November 2016

VENUE : Dr. Premchand Sagar Auditorium, Bangalore, Karnataka, India

THEME : NEUROPLASTICITY

### HIGHLIGHTS OF THE CONFERENCE:

- Pre conference workshops and brainstorming sessions with expertise faculty
- Key note address by Dr. Peter. L. Rosenbaum on “Knowledge translation on applied child development”
- Symposiums on Neuroplasticity by expert faculties like Dr. Shashikala G, Dr. Ashok Johari, Dr. Hans Forssberg, Dr. Anaita Hegde and Dr. M. S. Mahadeviah
- Family forum, media briefing and public awareness meet
- Scientific paper podium presentations

### STAY TUNED FOR MORE UPDATES ON THE UPCOMING EVENTS AND CONFERENCES ON:

[www.iacp.co.in](http://www.iacp.co.in)

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